

RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/833,815

Q64020

REMARKS

Claims 1-5 and 7 are all the claims pending in the application.

Reconsideration and review of the claims on the merits are respectfully requested.

Formal Matter

Applicants appreciate that the Examiner acknowledges Applicants' claim for foreign priority along with receipt of the priority document.

Rejections Under 35 U.S.C. § 103(a)

As a summary of the Official Action, the Examiner has rejected Claims 1-5 and 7 under 35 U.S.C. §103, citing the same references to Bresson, Lane, and White from previous Office Actions along with a new primary reference to Hiki et al. The Examiner indicates that Applicants' arguments in the previous Amendment under 35 U.S.C. § 1.111 filed on November 26, 2003, with respect to Claims 1-5 and 7 have been considered but are moot in view of the new grounds of rejection.

A. Claims 1-4 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hiki et al. (U.S. Pat. No. 4,301,725) in view of Bresson (U.S. Pat. No. 5,205,213).

The Examiner cites Hiki et al. as the primary reference in teaching a roller member comprising a metallic core roller, and a substantially unshrinkable sleeve which is heat-welded directly onto the surface of the core roller into which the substantially unshrinkable sleeve is pressed, wherein the substantially unshrinkable sleeve is formed of an elastomer material and has

RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/833,815

Q64020

a Young's modulus of 120-200 MPa. The Examiner asserts that the sleeve 44 is made of the same "polyamide resin" that Applicants use, and inherently has the claimed Young's modulus.

Hiki et al. assertedly teaches the invention cited with the exception of the thickness of the sleeve being 30-200 micrometer. However, the Examiner considered that it would have been obvious to provide a sleeve thickness of 30-200 micrometers, in light of Bresson, in order to provide a sleeve thickness that creates a light weight roll.

B. Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hiki et al. in view of Bresson as applied to Claim 1 above, and further in view of Lane et al. (U.S. Pat. No. 5,983,799).

The Examiner asserts that it would have been obvious to one of ordinary skill in the art to have provided the invention of Hiki et al./Bresson with the sleeve having a surface roughness of 5 micrometers or less, in light of Lane et al., in order to provide a sleeve that is capable of meeting tolerance requirements.

C. Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hiki et al. in view of Bresson as applied to Claim 1 above, and further in view of White et al. (U.S. Pat. No. 4,089,265).

The Examiner asserts that it would have been obvious to provide a sleeve having an inner diameter smaller than the outer diameter of the core roller, in light of White et al., in order to provide an even tighter fitting sleeve.

Applicants traverse, and respectfully request the Examiner's reconsideration for the following reasons.

RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/833,815

Q64020

The combination of Hiki and at least Bresson does not disclose or teach each and every element of the present claims. For example, as required by present Claim 1, a substantially unshrinkable sleeve is heat-welded directly onto the surface of the core roller. On the other hand, although Fig. 3 of Hiki indicates an elastomeric sleeve (44) bonded to the pulley/roller (16) Applicants dispute that Hiki discloses a substantially unshrinkable sleeve which is heat-welded directly on to the surface of the core roller as required by present claim 1. More particularly, the disclosure of Hiki reveals several points which distinguish Applicants' invention over Hiki.

First, Hiki discloses that the fixing of the elastomeric sleeve to the peripheral surface of the pulley/roller is made by "suitable bonding technique, such as sleeve melting method or the like"(see Hiki et al, col. 3, lines 11-14).

Second, Hiki discloses that the elastomeric sleeve member 44 is wetted with a lubricant liquid such as silicone oil so that friction occurring between the type-carrier and the platen is minimized (see Abstract) and such that a lubricant liquid (i.e., the lubricant liquid is contained in the elastomer sleeve 44) which oozes out of the sleeve 44 wets the inner face of the belt 12a (col. 3, lines 24-26). That is, Hiki's elastomeric sleeve as a final product contains a lubricant liquid which oozes out of the sleeve and wets the inner face of the belt.

However, Applicants direct the Examiner's attention to the clear difference between the fixing method of Hiki and the substantially unshrinkable sleeve which is heat-welded directly on to the surface of the core roller as required by the present claims.

In Hiki et al, in order to attain a satisfactory bonding of an elastomeric sleeve containing a lubricant and having a wetted surface with the surface of a pulley through a sleeve melting

RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/833,815

Q64020

method as described in the reference, significant shrinkage of the elastomeric sleeve is necessary. This is because lubricant leaching from the inside onto at least the pulley surface hampers obtaining a tight bonding therebetween. This point distinguishes the present invention from Hiki, as the present invention requires a substantially unshrinkable sleeve which is heat-welded directly on to the surface of the core roller. That is, the lubricant liquid of Hiki present between the elastomeric sleeve and the pulley does not allow for direct heat-welding. Consequently, Hiki, considered alone or in combination with other cited references, cannot achieve the present invention.

For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a).

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/833,815

Q64020

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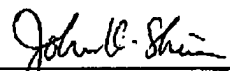
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